

Please amend the claims as follows:

1. (Currently Amended) A method of operating a memory management system for
5 processing data files received by a file server said memory management system from
an access flow regulator, said access flow regulator is an interface between a file
server and said memory management system, said memory management system is
common to all ports of said file server; said memory management system comprising
10 an access flow regulator, a plurality of high speed low storage capacity memories and
a lower speed high storage capacity bulk memory, said high speed memories have a
first data rate, said bulk memory has a second data rate substantially lower than said
first data rate; ~~said access flow regulator being adapted to generate requests received~~
~~from said file server for the reading and writing of data files by said memories~~, ~~said~~
~~access flow regulator defines an interface between said file server and said memory~~
15 ~~management system~~; said method comprises the steps of:

operating said access flow regulator for generating requests received by said
access flow regulator from said file server for the reading and writing of data files by
said memories;

initiating the writing of a data file by transmitting a write request and a data file
20 from said access flow regulator to one of said high speed memories, said data file has
a first portion and an excess portion;

writing said first part and said excess portion of said data file into said one high
speed memory; and

transferring said excess portion of said data file from said one high speed
25 memory to said bulk memory while leaving said first portion of said data file in said one
high speed memory.

2. (Currently Amended) A method of operating a memory management system
adapted to store data files received by a file server, ~~said system comprising an~~
30 memory management system from said access flow regulator, said access flow
regulator is an interface between a file server and said memory management system,
said memory management is common to all ports of said file server; said memory

management system comprising ~~an access flow regulator~~, a plurality of high speed low storage capacity memories and a lower speed high storage capacity bulk memory, said high speed memories have a first data rate, said bulk memory has a second data rate substantially lower than said first data rate,

5 ~~said an access flow regulator being adapted to generate requests received from said file server for the reading and writing of data files by said memories, said access flow regulator defines and is an interface between said file server and said memory management system,~~ said method comprises the steps of:

operating said access flow regulator for generating requests received by said
10 access flow regulator for the reading and writing of data files by said memories;

initiating the reading of a data file by transmitting a read request and a data file from said access flow regulator to one of said high speed memories, said data file has a first portion and an excess portion;

transmitting a read request for a data file from said access flow regulator to a
15 one high speed memory storing a first part of said data file;

reading said first portion of said data file from said one high speed memory;

transferring said excess portion of said data file from said bulk memory to said one high speed memory;

reading out said excess portion of said data file from said one high speed
20 memory; and

transmitting said first part and said excess portion said data file to said access flow regulator.

3. (Previously presented) The method of claim 1 further including the step of

25 operating said system to concurrently process data files for a plurality of requests from said access flow regulator.

4. (Original) The method of claim 1 further including the step of operating said system to concurrently process a plurality of data files stored in different ones of said high
30 speed memories.

5. (Original) The method of claim 1 wherein said system further comprises a plurality of state controllers each of which is individual to one of said high speed memories, said system further comprises an access bus connecting said access flow regulator with said state controllers, said step of transmitting a write request includes the steps of:

operating said access flow regulator to select an idle high speed memory that is to receive said write request;

transmitting said write request from said access flow regulator over said request bus to the state controller individual to said selected high speed memory; and

operating said state controller to extend said write request to the high speed memory.

6. (Original) The method of claim 5 wherein said step of operating said state controller to transmit said write request includes the steps of:

determining the present occupancy level of said selected high speed memory; transmitting said request to said selected high speed memory if said present occupancy is not exceeded; and

requesting a signalwise connection of said access flow regulator to said bulk memory if said present occupancy level of said selected high speed memory is exceeded.

7. (Original) The method of claim 5 wherein said system further includes a multiplexer, and an access bus connecting said state controllers with said multiplexer, and said system further includes a bus connecting said multiplexer with said bulk memory, said method includes the further steps of:

transmitting a request to said multiplexer for the transfer of data files from said state controllers to said bulk memory;

determining which one of a plurality of requesting state controllers is to be granted access to said bulk memory;

connecting signalwise said one requesting state controller to said bulk memory; and

controlling the operation of said bulk memory in the transfer of data from said selected high speed memory to said bulk memory.

8. (Original) The method of claim 7 including the further step of applying said data file from said high speed memory and said state controller via said multiplexer and said bus to said bulk memory.

9. (Original) The method of claim 2 wherein said step of transferring said data file from said bulk memory includes the steps of:

reading out files from said bulk memory to said high speed memories in a burst mode at a data rate substantially equal to the data rate of said high speed memories; storing said read out files in said high speed memories; and reading out said data file from said high speed memory for transfer to said access flow regulator.

10. (Previously presented) The method of claim 5 wherein said step of operating said state controllers to transmit said write request includes the further steps of:

concurrently serving multiple write requests directed to multiple files; serving the multiple write requests received by said access flow regulator; and extending multiple write requests received by said access flow regulator to said high speed memories.

11. (Original) The method of claim 5 wherein said step of operating said state controller includes the further steps of:

processing each received request to determine the present occupancy level of said high speed memory; extending said request to said high speed memories if said present occupancy level is not exceeded; and buffering said request in said access flow regulator if said present occupancy level is exceeded.

12. (Original) The method of claim 5 wherein said step of operating said state controllers includes the further steps of:

controlling the transfer of a data file from said high speed memory to said bulk memory; and

5 controlling the transfer of a data file from said bulk memory to said high speed memories.

13. (Original) The method of claim 5 wherein said step of operating said state controllers includes the further steps of:

10 determining whether said bulk memory is idle when a transfer is requested;
extending said data file to said bulk memory if said bulk memory idle; and
buffering said transfer request if said bulk memory is busy.

14. (Currently Amended) The method of claim 7 wherein said step of operating said multiplexer includes the further steps of:

determining which one of a plurality of said requesting high speed memories is to be granted access to said bulk memory;

granting the request to one of said high speed memories; and

buffering the requests of all but said one high speed memories.

20

15. (Original) The method of claim 7 wherein said step of operating said multiplexer includes the further steps of:

determining the identity to the one of said high speed memories to which a data file is to be directed by said multiplexer; and

25 controlling the transfer of said data file from said bulk memory to said identified high speed memory.

16. (Previously presented) A method of operating the memory management system of claim 1, said method comprising the further steps of:

30 generating a signal unique to each said high speed memory indicating the busy / idle state of each said high speed memory;

extending each generated busy / idle signal to said access flow regulator;
operating said access flow regulator to receive requests for the writing or
reading of files by said memories;

operating said access flow regulator in response to the receipt of said request
5 to read said busy / idle signals;

operating said access flow regulator in response to said reading to identify an
idle one of said memories; and

operating said access flow regulator for extending a request for the reading and
writing of a data file to said idle one high speed memory.

10

17. (Currently Amended) A memory management system ~~defining a file server~~
adapted to process ~~received~~ data files received by said memory management system
from an access flow regulator, said access flow regulator is an interface between a file
server and said memory management system,, said memory management system is
15 common to all ports of said file server; said memory management system comprises
[[:]] a plurality of low storage capacity high speed memories and a lower speed high
storage capacity bulk memory, said high speed memories have a first data rate and
said bulk memory has a second data rate lower than said first data rate;

~~an access flow regulator for generating requests for the reading and writing of~~
20 ~~files by said memories~~; said access flow regulator being adapted to generate requests
received from said file server for the reading and writing of data files by said
memories, ~~said access flow regulator defines is an interface between said file server~~
~~and said memory management system~~,

said system comprising:

25 apparatus for operating said access flow regulator to initiate the writing of a
data file ~~stored in~~ into said memories by transmitting a ~~an access~~ write request and a
data file to the one of said high speed memories;

apparatus for writing a first part and excess part of said data file into said one
high speed memory;

apparatus for transferring said excess part of said data file from said one high speed memory to said bulk memory while leaving the first part of said data file in said one high speed memory;

apparatus for subsequently transmitting a ~~read~~ request for the reading of said
5 data file from said access flow regulator to said one high speed memory;

apparatus for reading said first part of said data file in said one high speed memory;

apparatus for transferring said excess part of said data file from said bulk memory to said one high speed memory;

10 apparatus for reading out said first part and said excess part of said data file from said high speed memory; and

apparatus for transmitting said read out data file to said access flow regulator.

18. (Currently Amended) The system of claim 17 further comprising:

15 apparatus for generating a signal unique to each said high speed memory indicating the busy / idle state of each said high speed memory;

apparatus for extending each generated busy / idle said signal to said access flow regulator;

20 apparatus for operating said access flow regulator to receive a request for the writing or reading of data files by said memories;

apparatus for operating said access flow regulator in response to the receipt of said request to read each said busy / idle signal;

apparatus for operating said access flow regulator in response to said reading to determine the current busy / idle state of each of said memories; and

25 apparatus for operating said access flow regulator in response to a determination that one of said memories is currently idle for granting a request for the reading or writing of a data file by said one memory.